

**Titl : METAL STUD WALL PACKAGING SYSTEM**

**Field of the Invention**

**[0001]** The present invention relates to wall structures, and more particularly to stud wall frames.

**Background of the Invention**

**[0002]** Due to their ease of assembly and wide availability in various standard sizes, metal wall frames are quickly becoming the product of choice for most “do-it-yourself” handymen and wall installers. Metal wall frames provide an ideal and economical alternative to the wood wall frames, as they are more robust, lightweight, non-combustible, and easy to install. In addition, each metal wall frame is consistently manufactured and does not deviate from the standard manufacturing guidelines, which in turn translates into lesser imperfections and straighter finished walls.

**[0003]** An example of commonly available metal stud framing system is the CORUS STEEL FRAMING SYSTEM™ available from Corus Metal Profiles of Brampton, Ontario, Canada. Metal stud framing systems that are sold by manufacturers such as CORUS are typically distributed in packs of identical components to wholesalers and distributors. For example, the wall components will be distributed in 10 pieces of identical floor/ceiling tracks, 10 pieces of studs, etc.

**[0004]** Such distribution system could be inconvenient for the “do-it-yourself” handymen and the home supply or hardware stores that offer these products, as they frequently require less than all the parts found in a pack. This often results in the packs being broken open in the stores, and sometimes results in damaged and unusable products.

**[0005]** Another difficulty associated with existing wall frames is the time spent at the supplier store by the customer to find various components such as the floor and ceiling tracks, wood or metal studs, and various fasteners required for erecting the wall frame, as well as determining the number of these required components. An average handyman must therefore determine exactly what and how many components to retrieve and purchase for the wall framing project. This may require a novice wall installer an excessive amount of time spent to locate the components, and sometimes numerous trips to the hardware store in order to gather all of the necessary components for erecting the wall frame. The customer may end up with excess and unwanted components. Moreover, although these items are generally found in hardware and home supply stores, they may be stocked or shelved in different areas of the store which makes the task of retrieving the required components even more difficult.

**[0006]** Yet another difficulty associated with existing wall structures is that it is often required for a wall installer to constantly measure and mark the distance between the studs in order to ensure that the wall frame is properly supported. This is not only cumbersome, but also quite time consuming as it requires the wall installer to place down his or her wall framing tools, measure and mark the location of the next stud on the floor or ceiling track, pick up his or her wall framing tools and proceed with securing the subsequent stud. The task of marking the location of the studs is more tedious in extreme weather conditions.

**[0007]** Accordingly, there is a need for a wall framing system whereby the components are sized and conveniently regrouped for the customer. There is also a need for a wall framing system in which the need for the customer to make measurements is minimized.

#### **Brief Summary of the Invention**

**[0008]** The present invention provides a wall framing packaging system for metal stud walls which addresses the shortcomings associated with known systems.

**[0009]** In one aspect, the present invention provides a multi-component modular system which includes all the essential components for use in construction of metal stud wall frames of a predetermined size, namely, a floor track, a ceiling track, a plurality of studs and fasteners. The floor and/or ceiling tracks may be marked to indicate the location of the studs for fast construction of the wall frame.

**[0010]** In another aspect, the present invention provides a method of distributing framing materials for a wall section of predetermined dimensions, including the steps of:

- (a) providing a plurality of elongate framing studs each having a length that is at least sufficient for a height of the wall section;

- (b) providing a plurality of elongate ceiling and floor tracks, each track defining a channel for receiving and securing ends of the framing studs to form the wall section;

- (c) selecting, from the plurality of framing studs, at least a number of elongate framing studs required for framing the wall section using a predetermined stud spacing;

- (d) selecting, from the plurality of ceiling and floor tracks, at least an amount of ceiling and floor track required for the wall section; and

- (e) securing the selected framing studs and floor and ceiling tracks together unassembled in a transportable bundle.

**[0011]** In yet another aspect, the present invention provides a stud wall framing kit of unassembled components for framing a predetermined wall section. The kit includes a predetermined number of elongate framing studs, the predetermined number being at least the number of framing studs required for framing the predetermined wall section using a predetermined stud spacing. The kit further includes an elongate ceiling track and an elongate floor track each having channels for receiving ends of the framing studs, at least one of the ceiling track and floor track having a plurality of visible markings along a length thereof at spaced intervals for indicating desired locations for the framing studs.

[0012] Other aspects and features of the present invention will become apparent to those ordinarily skilled in the art upon review of the following description of specific embodiments of the invention in conjunction with the accompanying figures.

#### **Brief Description of the Drawings**

[0013] Reference will now be made to the accompanying drawings, which show, by way of example, a representative embodiment of the present invention, and in which:

[0014] Fig. 1 is a perspective view of a typical wall which has been partially framed using the metal stud wall packaging system of the present invention;

[0015] Fig. 2 is a perspective view of a metal stud wall packaging system according to the present invention;

[0016] Fig. 3 is a flow chart showing the sequence of steps involved in assembling a metal stud wall packaging kit according to the present invention;

[0017] Fig. 4 is a side elevational view of a table for marking the tracks to indicate the locations of the studs according to the present invention; and

[0018] Fig. 5 is a top elevational view of a table incorporating a press for marking the tracks to indicate the locations of the studs according to the present invention.

#### **Detailed Description of the Embodiments**

[0019] The present invention is now described with reference to accompanying drawings, wherein like constituent elements are designated by like reference numerals throughout the drawings.

[0020] Reference is now made to Fig. 1 which shows a perspective view of a typical wall which has been framed using the metal stud wall packaging system.

As well known in the art, the metal stud wall frame 10 includes a ceiling track 14, a floor track 16, and spaced metal framing studs 11 vertically secured therebetween. The studs 11 are generally C-shaped channeled members and come into intimate contact with the sidewalls of typically U-shaped ceiling track 14 and floor track 16. Fasteners 12 (shown on the ceiling track 14 only) such as framing screws are used to secure the studs 11 to the ceiling track 14 or floor track 16. The sidewalls of studs 11 may also define knurled flanges to securely hold screws fastening a wall panel 15 to the stud wall frame 10.

[0021] As shown in Fig. 1, the studs 11 are transversely spaced at spaced intervals 17 measured between the center of the studs 11. The spaced intervals 17 are generally 16" or 24", however, their actual length depends on the wall framing application. According to a novel aspect of the present invention, for ease of installation, at least one sidewall of the floor track 16 is marked uniformly at spaced intervals 17 to indicate to the wall installer the intermittent spacing between the studs 11. This in turn eliminates the need to manually measure the location of each stud 11, thereby allowing rapid construction in even inclement weather conditions and reducing construction project time. The markings 19 indicating the spaced intervals 17 between the studs 11 are made using adhesive stickers, dye, painting, making dimples on either the ceiling track 14 or the floor track 16, or other similar means for marking sheet metal. Although the ceiling track 14 can also include markings 19, preferably only the floor track 16 has the markings 19. However, even if both the ceiling track 14 and floor track 16 include the markings 19, they can still be perfectly aligned upon leveling of one stud located on both indicators.

[0022] The studs 11 are preferably sized to dimensionally match wood studs and are typically available in 1 5/8"x3 5/8", 1 5/8"x2 1/2" or 1 5/8"x1 5/8" thickness and width dimensions corresponding to 2x4, 2x3 or 2x2 wood studs respectively, depending on the application. Other 4"x 1 5/8", 6"x 1 5/8" or 8"x 1 5/8" can also be available corresponding to 2x4, 2x6, 2x8 wood studs. The ceiling track 14 and floor track 16, as well as the studs 11, are made of corrosion-resistant, galvanized steel sheet or like materials. A stiffening channel

(not shown in Fig. 1) can be employed to improve the structural rigidity of the metal stud wall frame 10. The stiffening channel can pass through one of the rows of aligned apertures 24 provided on the studs 11. The apertures 24 can also be conveniently used for passage of electrical wiring, pipes, or other structural members (not shown) through the studs 11.

**[0023]** The studs 11 may be implemented using regular metal wall studs, however, other types of studs such as cripple studs, jack studs, king studs or any other kinds may also be used.

**[0024]** According to preferred embodiments of the invention, all the component parts required by an installer to install a predetermined size of framing may be packaged together as a kit. Referring now to Fig. 2, there is shown a metal stud wall packaging system indicated generally by reference 30, which when assembled, would result in the wall frame 10 of Fig. 1 according to the present invention. The metal stud wall packaging system 30 is in a kit format and includes a ceiling track 14, a floor track 16, and a plurality of metal studs 11. In particular, the packaging system 30 includes the amount of metal framing required to frame a wall section of a predetermined size. For example, each system 30 could include one 10' ceiling track 14, one 10' floor track 16 and eight 8' metal studs 11, for framing a wall section having an appropriate size of 8' high by 10' long, with 16" stud spacing 17. The metal stud wall packaging system 30 preferably also includes framing screws 12 for attaching the studs 11 to the tracks 14,16. Other types of fasteners such as rivets may also be used to connect the studs 11 to the tracks 14,16.

**[0025]** The framing screws 12 may be put in a container such as a bag 40 or other package which is secured by tape or adhering to one of the metal framing components in the packaging system 10. The bag 40 will include at least the number of framing screws 12 required to assemble the wall section. Other fasteners, for example at least a screw 13 to fasten the ceiling track 14 to the ceiling joists, or at least a screw 18 required to secure the floor track 16 in place, may also be included in packaging system 30. In a similar fashion, screws 20

for attaching the wall panel 15 to the stud 11 may also be provided in the packaging system 30. Advantageously, the various components of the metal stud wall packaging system 30 can be packaged together by nylon straps 32, 34 or other means of packaging such as cable ties, metal wraps, plastic bags or the like.

[0026] The packaging system 30 may also include a stiffening channel 36, and preferably also include an instruction sheet 38 which outlines the steps necessary for erecting the wall frame. The instruction sheet 38 may also serve as a label for the metal stud wall packaging system 40. For example, the instruction sheet 38 may include marketing information in one portion of an outer side, and the instructions in another portion or on the inner side.

[0027] In a preferred embodiment, the instruction sheet may contain instructions advising the installer to take the following steps for erecting the wall frame structure: For installation, the wall installer must first mark the location for the ceiling track 14 and floor track 16 on a floor and ceiling respectively. The installer must then cut the ceiling track 14 and floor track 16 at the appropriate length. The next step involves attaching the ceiling track 14 to the ceiling joist using a fastener such as 1¼" drywall screws at 2 ft. intervals. In a similar fashion, the installer must also attach the floor track 16 to the floor using a fastener such as 1¼" screws at every 2 ft. interval for wood floors. For concrete floors, the floor track 16 is attached to the floor using concrete fasteners or nail drive anchors located at 2 ft. intervals on the floor track 16. The installer must then retrofit the studs at the spaced intervals 17. This is achieved by first cutting the studs 11 approximately ½" shorter than the distance L between the ceiling track 14 and floor track 16. The studs 11 are positioned at the spaced intervals 17 as indicated by markings 19, between the ceiling track 14 and floor track 16 by twisting and friction fitting. A close but not necessarily tight fit is desirable in order to permit slight movement of the studs 11 for adjustment. A level is used to level one stud 11. The studs 11 are then secured onto the ceiling track 14 and floor track 16 by framing screws in accordance with the indicator markings

19. The wall frame 10 can then be subsequently covered with a wall panel 15 made of drywall, wood, plastic or other similar paneling materials.

**[0028]** Referring now to Fig. 3, there is shown the sequence of steps involved in assembling a metal stud wall packaging system 30 of Fig. 2 in a modular kit according to the present invention. A first step of assembling the metal stud wall packaging system 30 of the present invention involves the step of obtaining from one or more wall frame component suppliers various fasteners, as well as bundles of pre-packed studs 11, ceiling or floor tracks 14,16 or stiffening channels 36 (Step S1). These various components are then separated, sorted (if required) and regrouped in individual quantities for kits (Step S2). For instance, a typical kit may include ten studs 11, a ceiling track 14, a floor track 16, a stiffening channel 36, and a bag 40 containing fastener means as required for erecting the wall frame structure 10 as shown in Fig. 1. The fastener means may include 1¼" screws for securing the ceiling and floor tracks 14, 16 to a ceiling and floor, as well as 7/16" pan head framing screws to secure the studs 11 to the ceiling and floor tracks 14, 16.

**[0029]** The next step involves the marking of the ceiling track 14 and floor track 16 to indicate the locations of the spaced intervals 17 by way of markings 19 (Step S3). The location of the markings 19 corresponds to the designated positions of the studs 11 when erected. The various components of the kit are then packaged together (Step S4) for distribution (Step S5). Accordingly, the ceiling track 14, floor track 16, metal studs 11, stiffening channel 36, and bag 40 are then packed together and wrapped using nylon wrappers 32, 34. Preferably, the instruction sheet 38 wraps around a portion of the entire kit.

**[0030]** The kits may be directly delivered to home hardware stores or home supply retailers (Step S7), or in the alternative, sent back to the wall frame supplier (Step S6) to be eventually delivered and distributed to the home hardware stores or home supply retailers (Step S7).



**[0031]** Reference is now made to Figs. 4 and 5 wherein a table 50 for marking spaced intervals 17 on a ceiling track 14 or a floor track 16 (as shown in Fig. 1) is illustrated. The table 50 includes a tabletop 52 having a first recessed area 54 for supporting the ceiling track 14 or the floor track 16 therein. The first recessed area 54 includes rails 56 at transversely spaced locations along the bottom wall 58 of the first recessed area 54 to allow the ceiling or floor track 14, 16 to freely move along the length of the tabletop 52. The tabletop also includes a second recessed area 64 wherein an indicator press 60 therein can move longitudinally along the length of the tabletop 52 and parallel to the first recessed area 54. The second recessed area 64 also comprises rails 66 to allow longitudinal movement of the indicator press 60 along the length of the tabletop 52. The indicator press 60 is secured to the tabletop 50 by movable securing means 70 such as a vise clamp, brace, clip or the like, and includes a position indicator 72. The position indicator 72 comes in registry with the reference ruler 68 to show the exact position of the indicator press 60.

**[0032]** The tabletop 52 is also provided with a reference ruler 68 for accurate positioning of the press 60 when marking the ceiling track 14 or the floor track 16. To mark the ceiling or floor tracks 14, 16, a track 16 is inserted in the first recessed area 54. Using the reference ruler 68, the location of the first marking 19 (as shown in Fig. 1) is determined, and the indicator press 60 is secured to the tabletop 52. The indicator press 60 is then mobilized in order to make the marking 19 on the rail 16. The indicator press 60 is then positioned at the desired location of the second marking 19, secured to the tabletop 52 and triggered in order to mark the position of the second marking 19. The foregoing steps are repeated until the track 16 has been marked.

**[0033]** It should be noted that in an alternative embodiment, the indicator press 60 and the recessed area 52 may be located on top on the tabletop 52.

**[0034]** The present invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. Certain adaptations and modifications of the invention will be obvious to those skilled in the art. For

instance, in some embodiments wood studs instead of metal studs could be used. Therefore, the presently discussed embodiments are considered to be illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.